ColdBlock™ Technologies Inc.

APPLICATION NOTE

NRC DOLT-5 Dogfish Liver

SUMMARY

The application note summarizes the digestion of DOLT-5, a Dogfish Liver Certified Reference Material using ColdBlock™ Digestion Pro Series Technology.

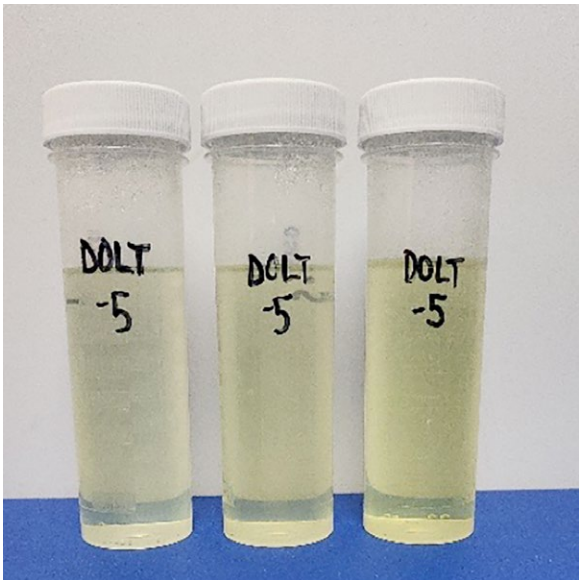
Instrument:	ColdBlock CBM sample digester, chiller, ICP-MS & ICP-OES
Published:	March 2023
Digestion Time:	10 Minutes
Acid Used:	HNO_3 & H_2O_2
Average ColdBlock Recovery vs. CRM:	■ 104% Arsenic ■ 96% Mercury ■ 107% Lead

METHODOLOGY

1. Chiller temperature was set to -5°C
2. 0.5g of each sample was weighed and placed into a ColdBlock™ Digestion vessel
3. 15 mL HNO_3 + 2mL H_2O_2 was added
4. Sample were digested at 60% power for 10 minutes
5. Samples were cooled and bulked to 40mL using 2% HNO_3 + 0.5% HCl $_{v/v}$

DISCUSSION

- Samples were clear at the end of the digestion
- Samples were filtered prior to analysis



Frozen dogfish liver was sourced and prepared by the Guelph Food Technology Centre in Guelph, Ontario Canada.

DOLT-5, Dogfish Liver; National Research Council Canada, Ottawa, Ontario Canada, August 2014.

NRC DOLT-5 Dogfish Liver

Results

NRC DOLT-5 (Dogfish Liver)										
Method:	**0.5g**	**15mL HNO_3 + 2mL H_2O_2 Digest at 60% power for 10 minutes.**								
Element	**Reference Value (ppm)**	**95% Confidence Limits**		**Sample A**	**Sample B**	**Sample C**	**Average (ppm)**	**Stdev**	**% RSD**	**% Recovery**
		Low	**High**							
Ag	2.05	1.97	2.13	2.05	2.01	2.04	2.03	0.017	0.8%	99%
Al	31.7	27.5	35.9	30.9	28.5	31.9	30.4	1.423	4.7%	96%
As	34.6	32.2	37	35.7	36.3	36.4	36.1	0.292	0.8%	104%
Ca	550	470	630	558	553	553	555	2.382	0.4%	101%
Cd	14.5	13.9	15.1	14.2	13.9	14.1	14.1	0.125	0.9%	97%
Co	0.267	0.241	0.293	0.266	0.267	0.275	0.269	0.004	1.5%	101%
Cu	35	32.6	37.4	36	36	36	36	0.213	0.6%	103%
Fe	1070	990	1150	1086	1063	1053	1067	14.116	1.3%	100%
Hg	0.44	0.26	0.62	0.43	0.40	0.44	0.42	0.017	4.0%	96%
K	14400	11400	17400	14329	14293	14220	14281	45.007	0.3%	99%
Mg	940	840	1040	948	941	932	940	6.565	0.7%	100%
Mn	8.91	8.21	9.61	9.73	9.32	8.99	9.35	0.303	3.2%	105%
Mo	1.41	1.19	1.63	1.45	1.48	1.48	1.47	0.014	1.0%	104%
Na	9900	8300	11500	9904	9907	9777	9862	60.695	0.6%	100%
P	11500	N/A	N/A	11360	11474	11139	11324	138.766	1.2%	98%
Pb	0.162	0.13	0.194	0.172	0.167	0.183	0.174	0.007	3.8%	107%
Sb	0.013	N/A	N/A	0.016	0.018	0.016	0.017	0.001	5.7%	128%
Se	8.3	6.5	10.1	8.3	8.3	8.3	8.3	0.024	0.3%	100%
Sn	0.069	0.033	0.105	0.064	0.066	0.075	0.068	0.005	7.0%	99%
Sr	3.73	3.47	3.99	3.68	3.67	3.74	3.70	0.031	0.8%	99%
Tl	0.013	N/A	N/A	0.013	0.013	0.014	0.013	0.0005	3.5%	103%
U	0.082	N/A	N/A	0.078	0.076	0.077	0.077	0.001	1.1%	94%
V	0.51	0.45	0.57	0.50	0.59	0.57	0.55	0.042	7.5%	109%
Zn	105.3	99.9	110.7	105.7	105.8	105.7	105.8	0.080	0.1%	100%

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